

REMARKS

Claims 1-8 and 10-23 currently appear in this application. The Office Action of March 17, 2008, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Interview Summary

Applicant's attorney wishes to thank Examiner Goodrow for the courtesies extended during the interview of June 24, 2008. During that interview, it was agreed that claim 1 would be allowable if it included a range of the saturation magnetization and dielectric breakdown. Claim 8 would be allowable if it included the oxygen concentrations recited in claim 9.

Claim Amendments

In claim 1, the description of $0 < R(\text{Ca}) < 0.10$ includes the following embodiments:

- (i) $R(\text{Ca}) = 0$; $a = 0$
- (ii) $R(\text{Ca})$ is not 0; a is not 0.

Namely, the formula $\text{Ca}_a\text{Mg}_b\text{Fe}_c\text{O}_d$ (1) can be substantially represented by the formula $(\text{Mao})_b(\text{Felo}_n)_{c/2}$.

corresponding to embodiment (i)' or $(\text{CIO})_a(\text{Mao})_b(\text{Fe}_1\text{O}_n)_{c/2}$,
corresponding to embodiment (ii).

Since in embodiment (ii) the CIO components is essential, claim 1 has been amended to recite, "A Mg-based ferrite material consisting essentially of Mao and Fe_1O_n components [corresponding to embodiment (i)] or of CIO, Mao and Fe_1O_n components, [corresponding to embodiment (ii)]."

The specification teaches that the ferrite material as claimed herein consists essentially of Mao and Fe_1O_n components or of CIO, Mao and Fe_1O_n components. The formula $\text{Ca}_a\text{Mg}_b\text{Fe}_c\text{O}_d$ (1) can be substantially represented by the formula $(\text{Mao})_b(\text{Fe}_1\text{O}_n)_{c/2}$ in formula (1), $a=0$ and $d= a + b + (3c/2)$.

It should be noted that page 11, lines 4-20 of the specification as filed teaches that the ferrite material claimed herein may contain components other than CIO, Mao and Felon components.

It is respectfully submitted that the claims as amended in formula (1) are appropriately specified, since the limitation $0.10 \leq b/(b + c/2) \leq 0.85$ specifies the mole ratio between the Mao and Felon components. And the limitation $0 \leq R(\text{Ca}) \leq 0.10$ appropriately specifies the ratio between the Ca components and the total of $(\text{CIO})_a(\text{Mao})_b(\text{Fe}_1\text{O}_n)_{c/2}$.

It is respectfully submitted that the claims correctly express the values for a, b, c and d in formula (1),

since the limitation, since the limitation $0.10 \leq b/(b+c/2) \leq$ appropriately specifies the mole ratio between the magnesium oxide and the ferric oxide components, and the limitation $0 \leq R(\text{Ca}) \leq 0.10$ appropriately specifies the ration between the calcium oxide component and the total of $(\text{CaO})_a(\text{MgO})_b(\text{Fe}_2\text{O}_3)_{c/2}$.

In accordance with the Examiner's helpful suggestions, limitations regarding saturation magnetization measured at 14 kOe using a vibrating sample magnetometer and the limitations regarding the mixing the raw materials have been added to the claims.

Submitted herewith is a table showing calculated results for values of a, b, c and d in formula (a). The mole ratios of a, b, c and d can be calculated by the amounts of the raw materials used in each example. New claim 21 is based upon the data in this table.

Rejections under 35 U.S.C. 112

Claims 1, 8 and 12 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant regards as the invention. In claim 1, the references to a, b and c are said to fail to point out the applicant's invention because $a=b=c=100$ mol% and d is a whole number. Claim 1 is said to fail to teach the filed for the saturation magnetization. Claims 8 and 12 are said to teach mixing raw materials.

This rejection is respectfully traversed. As noted above, the claims have been amended to more clearly define the invention for which patent protection is sought.

Art Rejections

Claims 1-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) obvious over Mano et al., US 5,538,656.

This rejection is respectfully traversed. The presently claimed composition is a magnesium-based ferrite material consisting essentially of Mg and Fe_{10}O_n , or of ClO , Mao and Fe_{10}O_n components made by a specific heat-treatment process. If the heat-treatment step is not conducted as claimed herein, the ferrite will contain a significant amount of magnetite (Fe_3O_4) in the Fe_{10}O_n . The Fe_3O_4 component decreases the dielectric breakdown voltage of a ferrite. The ferrites disclosed in Mano contain a significant amount of Fe_3O_4 , and, accordingly, cannot attain a high dielectric breakdown voltage, in contrast to the presently claimed ferrite material. Mano is silent with respect to technical information regarding a dielectric breakdown voltage or any need to attain a higher dielectric breakdown voltage. For the foregoing reasons, it is respectfully submitted that the presently claimed ferrite is neither disclosed nor suggested in Mano.

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In view of the above, it is respectfully submitted
that the claims are now in condition for allowance, and
favorable action thereon is earnestly solicited.

Respectfully submitted,

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| | MgO | | Fe ₂ O ₃ | | CaO | | a | b | c | d | b/(b+c/2) | R(Ca) |
|------------|-------------|----------------|--------------------------------|----------------|-----|----------------|------|------|------|-----|-----------|-------|
| | molar ratio | Formula weight | molar ratio | Formula weight | wt% | Formula weight | | | | | | |
| Example 1 | 70 | 40.30 | 30 | 159.69 | 0 | 56.08 | 0.00 | 0.70 | 0.60 | 1.6 | 0.70 | 0.00 |
| Example 2 | 60 | 40.30 | 40 | 159.69 | 0 | 56.08 | 0.00 | 0.60 | 0.80 | 1.8 | 0.60 | 0.00 |
| Example 3 | 50 | 40.30 | 50 | 159.69 | 0 | 56.08 | 0.00 | 0.50 | 1.00 | 2.0 | 0.50 | 0.00 |
| Example 4 | 40 | 40.30 | 60 | 159.69 | 0 | 56.08 | 0.00 | 0.40 | 1.20 | 2.2 | 0.40 | 0.00 |
| Example 5 | 35 | 40.30 | 65 | 159.69 | 0 | 56.08 | 0.00 | 0.35 | 1.30 | 2.3 | 0.35 | 0.00 |
| Example 6 | 30 | 40.30 | 70 | 159.69 | 0 | 56.08 | 0.00 | 0.30 | 1.40 | 2.4 | 0.30 | 0.00 |
| Example 7 | 50 | 40.30 | 50 | 159.69 | 2 | 56.08 | 0.04 | 0.50 | 1.00 | 2.0 | 0.50 | 0.02 |
| Example 8 | 50 | 40.30 | 50 | 159.69 | 4 | 56.08 | 0.07 | 0.50 | 1.00 | 2.1 | 0.50 | 0.04 |
| Example 9 | 50 | 40.30 | 50 | 159.69 | 8 | 56.08 | 0.16 | 0.50 | 1.00 | 2.2 | 0.50 | 0.08 |
| Example 10 | 35 | 40.30 | 65 | 159.69 | 2 | 56.08 | 0.04 | 0.35 | 1.30 | 2.3 | 0.35 | 0.02 |
| Example 11 | 35 | 40.30 | 65 | 159.69 | 4 | 56.08 | 0.09 | 0.35 | 1.30 | 2.4 | 0.35 | 0.04 |
| Example 12 | 35 | 40.30 | 65 | 159.69 | 8 | 56.08 | 0.18 | 0.35 | 1.30 | 2.5 | 0.35 | 0.08 |
| Example 13 | 20 | 40.30 | 80 | 159.69 | 2 | 56.08 | 0.05 | 0.20 | 1.60 | 2.6 | 0.20 | 0.02 |
| Example 14 | 20 | 40.30 | 80 | 159.69 | 4 | 56.08 | 0.10 | 0.20 | 1.60 | 2.7 | 0.20 | 0.04 |
| Example 15 | 20 | 40.30 | 80 | 159.69 | 8 | 56.08 | 0.21 | 0.20 | 1.60 | 2.8 | 0.20 | 0.08 |
| Example 16 | 10 | 40.30 | 90 | 159.69 | 1 | 56.08 | 0.03 | 0.10 | 1.80 | 2.8 | 0.10 | 0.01 |
| Example 17 | 35 | 40.30 | 65 | 159.69 | 4 | 56.08 | 0.09 | 0.35 | 1.30 | 2.4 | 0.35 | 0.04 |
| Example 18 | 35 | 40.30 | 65 | 159.69 | 4 | 56.08 | 0.09 | 0.35 | 1.30 | 2.4 | 0.35 | 0.04 |
| Example 19 | 35 | 40.30 | 65 | 159.69 | 4 | 56.08 | 0.09 | 0.35 | 1.30 | 2.4 | 0.35 | 0.04 |